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The Effectiveness of Animation And Comics As Educational Media For Preventing Stunting In Adolescent Girls In The West Cilandak Village South Jakarta

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Abstract

Adolescent girls have a strategic role in stunting prevention because they are future mothers who need to understand the importance of nutrition since pregnancy. Although the national stunting prevalence in Indonesia reached 21.6%, this figure is still above the target of 14% by 2024. This study uses a quasi-experimental method without a control group to evaluate the effectiveness of animation and comic media as a means of stunting prevention education for adolescent girls in Cilandak Barat Village. The author gave An animation video to the first group, and the second group was given comics with the same educational content. Observation was carried out for 3 months, and the study results showed an increase in knowledge in the animation group by 1.04 and in the comic group by 1.40. In addition, there was an increase in attitude in the animation group by 2.20 and in the comic group by 1.56. The analysis showed a significant difference in attitude before and after the intervention with a p-value of 0.000 (<0.05). In conclusion, animated video media is more effective in increasing the understanding and attitude of adolescent girls toward stunting prevention than comic media.

Keywords: Animation, Comic, Adolescent Girls, Stunting

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1. Introduction

Stunting is a chronic nutritional problem caused by long-term dietary deficiencies, especially during the first 1,000 days of life, which includes pregnancy until the child is

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two years old. Stunting impacts a child's stunted physical growth, brain development, intelligence, and future productivity. According to the 2023 Indonesian Nutrition Status Survey (SSGI), the national prevalence of stunting in Indonesia still stands at 21.6%. Although this figure shows a slight decrease from previous years, it is still above the target set by the government to reduce stunting to 14% by 2024.

In South Jakarta, the prevalence of stunting is also still a serious concern. Based on data from the DKI Jakarta Health Office in 2023, the prevalence of stunting in South Jakarta reached around 15.3%, which reflects the need for more effective interventions in preventing stunting, primarily through health education to vulnerable groups, such as adolescent girls. In addition to stunting, anemia in teenage girls is also a serious problem related to reproductive health and has the potential to increase the risk of stunting in future generations. Anemia can affect the health of pregnant women and contribute to the birth of low-weight babies, which is one of the risk factors for stunting. Based on Riskesdas data in 2023, the prevalence of anemia among adolescent girls in Indonesia reached 32%, with the prevalence rate in South Jakarta approaching 28%. This figure shows that many teenage girls still lack adequate education regarding the importance of nutrition and reproductive health.

Adolescent girls play a strategic role in preventing stunting in the future, as they are future mothers who must understand the importance of good nutrition since pregnancy. However, the challenge in educating adolescents lies in delivering information engagingly and effectively. Animation and comics are proven tools that can capture the attention of adolescents and deliver messages in a way that is easier to understand. Animation offers dynamic and interactive visuals, while comics combine engaging stories with images that can clarify educational messages.

As the largest age group in Indonesia's population structure, adolescents are the focus of attention and a strategic intervention point for human resource development. The most crucial step to be taken is increased attention to adolescent girls, as they face more significant risks and are more vulnerable to the social environment. In the education field, the teenage age group proportionally experiences the most school dropouts. In terms of

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maternal mortality and morbidity, the problem starts with adolescent girls, where early age, low self-esteem and status, and poor nutrition begin to have a final impact on slow deterioration and early death. In this adolescent age group, the level of social welfare, education, culture, health, family welfare and population (Soebanjo, 2020). Some of the main factors that cause stunting include Maternal Nutrition: Nutritional deficiencies during pregnancy can inhibit fetal growth, Child Nutrition Intake: Inadequate food in terms of quantity and quality during toddlerhood has great potential to cause stunting, Parenting: Inappropriate feeding practices can affect a child's nutritional status, Environmental health: Poor sanitation and limited access to clean water can increase the risk of infections that inhibit nutrient absorption, Maternal and Child Health: Recurrent infections and chronic diseases in mothers and children can worsen children's nutritional status. Using engaging and easy-to-understand educational media such as animation and comics can increase the effectiveness of message delivery; the press consists of visual media animations that use moving images to convey information and media comics that use images and text to tell a story. The advantages of comics as educational media: research conducted by Smith in 2017 showed that animation could increase understanding and retention of health information in adolescents. Brown, in 2018, showed that comic media could improve students' interest and knowledge of complex health material.

2. Research Method

This study uses quasi-experimental without a control group of adolescent girls who live in Cilandak Barat Village. Respondents were given intervention through animated videos and comics for 2 (two) times pre- and post-activities. With the research design *One Group Posttest-Only Design).* 60 adolescent girls were divided into 30 respondents in the Animation group and 30 in the comic group by the inclusion and exclusion criteria. The research was conducted from June to October 2024. The research instruments used were Pre-post test questionnaires to measure knowledge and attitudes, animated videos and comics as educational media. Data analysis was carried out uni variant to describe age, education, learning, and sources of information, and bivariate analysis with the T-Test test to assess differences in knowledge and attitudes for animation and comic groups, as well

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as multivariate analysis, to evaluate differences in stunting knowledge and attitudes between the two groups.

3. Results and Discussions

a. Result

Table 1.
Distribution of Respondent Characteristics

Variables	Animation		Comics		Total	
	N	%	N	%	N	%
Age						
<12 years	13	43.3	10	33.3	23	38.3
12-14 years	7	23.3	13	43.3	20	33.3
15-17 years old	8	26.7	5	16.7	13	21.7
>17 years old	2	6.7	2	6.7	4	6.7
Education						
SD	13	43.3	10	33.3	23	38.3
SMP	7	23.3	13	43.3	20	33.3
SMA/SMK	8	26.7	5	16.7	13	21.7
PT	2	6.7	2	6.7	4	6.7
Stunting Knowledge						
Yes	8	26.7	5	16.7	13	21.7
No	22	73.3	25	83.3	47	78.3
Source of Health Information						
School	16	53.3	18	60.0	34	56.7
Family	7	23.3	8	26.7	15	25.0
Internet/Social Media	6	20.0	3	10.0	9	15.0
Friends	1	3.3	1	3.3	2	3.3

The table above shows that the animation group is at the age of <12 years, which is 43.3%, while the comic group is mainly at the age of 12-14 years, 43.3%. Based on the level of education, the animation group was mainly at the elementary school level at 43.3%, while the comic group was mainly at the junior high school level at 43.3%. Based on stunting knowledge, most animation and comic groups did not know about stunting, namely 73.3% and 83.3%, respectively. The source of information obtained by the animation and comic groups mostly came from schools, namely 53.3% and 60%, respectively.

Table 2.
Overview of Respondents' Stunting Understanding and Attitudes

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Variables		Animation Group				Comics Group			
		Mean	Min	Max	SD	Mean	Min	Max	SD
Understanding	Pre-test	2.13	2	3	0.51	2.27	2	4	0.69
	Post-test	3.17	2	4	0.87	3.67	2	4	0.76
Attitude	Pre-test	1.23	1	2	0.43	1.47	1	4	0.82
	Post-test	3.43	2	4	0.63	3.03	2	4	0.61

The table above shows that the average understanding of stunting before and after education with comics is 2.27 and 3.67, while the knowledge of stunting before and after schooling using animation is 2.13 and 3.17, respectively. The table above also shows that the average attitude towards stunting before and after education with comics is 1.47 and 3.03, while the attitude towards stunting before and after schooling using animation is 1.23 and 3.43, respectively.

Table 3:
Differences in Understanding Stunting Before and After Comics and Animation

Group		Mean	SD	Min-Max	P value*
Animation	Pre-test	2.13	0.51	2.00-3.00	0.000
	Post-test	3.17	0.87	2.00-4.00	
Comics	Pre-test	2.27	0.69	2.00-4.00	0.000
	Post-test	3.67	0.76	2.00-4.00	

*T-Test

The following is the difference in understanding stunting before and after being given comics and animations. The results showed increased understanding in the animation and comic groups by 1.04 and 1.40, respectively. The analysis results show a significant difference in knowledge before and after being given comics and animations with a p-value of 0.000 <0.05.

Table 4 :
Differences in Stunting Attitudes Before and After Comics and Animations

Group		Mean	SD	Min-Max	P value*
Animation	Pre-test	1.23	0.43	1.00-2.00	0.000
	Post-test	3.43	0.63	2.00-4.00	
Comics	Pre-test	1.47	0.82	1.00-4.00	0.000
	Post-test	3.03	0.61	2.00-4.00	

*T-Test

The following is the difference in attitudes towards stunting before and after being

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given comics and animations. The results showed increased attitudes in the animation and comic groups by 2.20 and 1.56, respectively. The analysis results show a significant difference in attitudes before and after being given comics and animations with a p-value of 0.000 <0.05.

Table 5.
Differences in Understanding and Attitudes Towards Stunting
Between Comic and Animation Groups

Variables		Mean	SD	Mean Difference	P value*
Understanding	Comic Post-test	3.17	0.87		
	Animation Post-test	3.67	0.76	-0.50	0.021
Attitude	Comic Post-test	3.03	0.61		
	Animation Post-test	3.43	0.63	-0.40	0.015

*Logistic Regression

The table above shows that the average understanding of stunting after being given comics is 3.17, while the average understanding after being given animation is 3.67. The analysis results show a significant difference in knowledge between the comic group and the animation group (p 0.021 <0.05). The results of the analysis show that providing education using animation is more effective in increasing understanding of stunting than providing education using comics.

The table above shows the average attitude towards stunting in the comic and animation groups. The average attitude towards stunting after being given comics was 3.03, while the average attitude towards stunting after animation was 3.43. The analysis results show a significant difference in attitude between the comic group and the animation group (p 0.015 <0.05). The analysis results show that providing education using animation is more effective in improving attitudes towards stunting than providing education using comics.

b. Discussion

1. Respondent Characteristics

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a. Age

The results showed that almost all animation and comic media respondents were <12-14 years old, with a percentage of 43.3% and 33.3% respectively. The age of adolescents <12 - 14 years is a very appropriate age because most adolescent girls in Indonesia have just experienced menarche. At this age, teenage girls are vulnerable to health problems in nutritional status, which, if not addressed, will affect the nutritional status of in the future and also their offspring. Therefore, education on understanding and attitudes towards stunting prevention is highly recommended. (Muchtar et al., 2023).

Education is a formal and informal learning process that aims to develop individuals' knowledge, skills and attitudes. In this study, education refers to the last level of education the respondents (adolescent girls) have taken. The level of education can affect adolescents' understanding of educational messages delivered through animations and comics. Adolescents with higher education tend to have a better ability to understand and interpret health information.

b. Education

Based on the level of education, the animation group had the most elementary school students at 43.3%, while the comic group had the most junior high school students at 43.3%. Education is a formal and informal learning process that aims to develop individual knowledge, skills and attitudes. In this study, education refers to the last level of education taken by respondents (adolescent girls). The level of education can affect adolescents' understanding of educational messages delivered through animations and comics. Adolescents with higher education tend to have a better ability to understand and interpret health information. Education at the junior high school level is the main focus of stunting prevention education for adolescents because junior high school-aged adolescents (around 12-15 years old) are in the phase of rapid growth and puberty development. During this period, nutritional needs increase

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significantly to support physical growth and development of reproductive organs. Appropriate nutrition interventions during this period can prevent the risk of stunting in the next generation. Adolescent girls in junior high school age need to be prepared for a healthy pregnancy in the future. Education on balanced nutrition and anemia prevention through routine Blood Additive Tablets (TTD) administration can improve their nutritional status, thereby reducing the risk of giving birth to stunted children.

Adolescence is the perfect time to form healthy habits, including nutritious diets and other health behaviors. Education at the junior high school level can instill knowledge and awareness that will positively impact the long term (remakes 2022).

c. Knowledge about stunting

In the group based on stunting knowledge, most of the animation group and the comic group did not know about stunting, namely 73.3% and 83.3%, respectively. Knowledge about stunting includes adolescents' understanding of stunting conditions, causes, long-term impacts, and ways to prevent it. The initial understanding of adolescents can determine how much benefit education through animation and comics can provide. This study evaluates whether educational media can improve their understanding of stunting. There was a significant increase in adolescents' knowledge about stunting after being given education.

d. Source of Information

In the Source of Information variable, 53.3% and 60% of the information obtained by the animation and comic groups came from school, respectively. The source of information is how adolescents obtain information related to stunting, for example, through schools, the internet, social media, family, or health services. Knowing adolescents' primary sources of information can help understand their information access patterns so that animation and comic media can be designed according to their preferences.

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Schools are one of the main places for adolescents to get information about stunting prevention. Most adolescents spend significant time at school, so educational institutions effectively deliver health information, including stunting prevention. The government and related institutions often implement health programs in schools. For example, the Indonesian Ministry of Health has promoted "Nutritious Action" in schools with three intervention packages, namely the provision of weekly Blood Addition Tablets (TTD) for adolescent girls, physical activity, and consumption of balanced nutritious food (Ministry of Health 2022). Teachers and school health workers provide education on nutrition and reproductive health to prevent stunting from an early age.

e. Understanding of Stunting Before and After Comics and Animation

In the variable understanding of stunting before and after being given comics and animations. The analysis results show a significant difference in knowledge before and after being given comics and animation with a p-value of 0.000 <0.05, so there is a meaningful relationship in knowledge before and after education. The results showed that there was an increase in understanding in the animation and comic groups by 1.04 and 1.40, respectively, so it can be concluded that there was an increase in the use of animation media there was an increase in knowledge by 1.04 from before and after education than comic media.

f. Differences in Stunting Attitudes Before and After Comics and Animations

There are variable differences in attitudes towards stunting before and after being given comics and animations. The analysis results show a significant difference in attitudes before and after being given comics and animations with a p-value of 0.000 <0.05. The results showed increased understanding in the animation and comic groups by 2.20 and 1.56, respectively. So it can be concluded that there was an increase in the use of animation media and an increase in attitude by 2.20 from before and after education than the use of comic press.

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4. Conclusion

The results showed increased understanding in the groups given education through animation and comics, with an increase of 1.04 and 1.40, respectively. This concludes that animation media is more effective in increasing knowledge than comic media. Further analysis showed a significant difference in attitude before and after the intervention, with a p-value of 0.000 <0.05. The increase in mentality in the animation group was 2.20, and in the comic group, it was 1.56, indicating that the animation media was also more effective in changing attitudes.

Counseling through animation media is needed to increase adolescent girls' understanding and attitude toward stunting prevention. Schools are expected to use animated media to educate about preventing stunting in teenage girls.

5. Compliance with ethical standards

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Disclosure of conflict of interest

This research collaboration is positive for all researchers, so conflicts, problems and others are absolutely no problem for all writers.

Statement of informed consent

Every action we take as authors is a mutual agreement or consent.

Reference

1. Aisyaroh, N. (2012). Kesehatan Reproduksi Remaja. Jurnal Majalah Ilmiah Sultan Agung. www.unissula.ac.id
2. Black RE, Victora CG, Walker SP, et al. Maternal and child undernutrition and overweight in low-income and middle-income countries. The Lancet. 2013; 382(9890): 427-451. https://doi:10.1016/S0140-6736(13)60937-X
3. Depkes RI. Panduan Nasional Pencegahan Stunting. Jakarta: Departemen Kesehatan RI;

Publish: Association of Indonesian Teachers and Lecturers
International Journal of Health Sciences (IJHS)
Journal Homepage: https://jurnal.agdosi.com/index.php/IJHS/index
Volume 2 | Number 4 | December 2024 |

2021.
4. Kartika R, Saputra W. The Impact of Comic-Based Learning on Adolescent Health Knowledge. Journal of Educational Media & Technology. 2021; 26(1): 112-123. https://doi:10.1080/13581602.2021.1960759
5. Kementerian Kesehatan Republik Indonesia. Pedoman Pencegahan Stunting di Indonesia. Jakarta: Kemenkes RI; 2019.
6. Muchtar, F., Rejeki, S., Elvira, I., & Hastian, H. (2023). Edukasi Pengenalan Stunting Pada Remaja Putri. Lamahu: Jurnal Pengabdian Masyarakat Terintegrasi, 2(2), 138–144. https://doi.org/10.34312/ljpmt.v2i2.21400
7. Raj M, Kumar RK. Prevention of childhood obesity and overweight in low-income and middle-income countries. The Lancet Child & Adolescent Health. 2020; 4(8): 587-588. https://doi:10.1016/S2352-4642(20)30222-5
8. Salim S, Mahmud A. Effectiveness of Digital Media in Promoting Health Education in Low-Resource Settings. Journal of Health Communication. 2019; 24(3): 272-280. https://doi:10.1080/10810730.2019.1593556
9. Sari DP, Nurdin AA. Implementation of Animation in Health Promotion for Youth: A Systematic Review. International Journal of Health Promotion and Education. 2023; 61(2): 157-167. https://doi:10.1080/14635240.2023.1600684
10. Setiawati EP, Sundari S. The Role of Media in Health Education to Prevent Stunting among Adolescents: A Review. Indonesian Journal of Public Health. 2022; 17(2): 89-97. https://doi:10.20473/ijph.v17i2.2022.89-97
11. World Health Organization. Stunting in a nutshell. WHO; 2020. [Accessed August 2024]. Available from: https://www.who.int/news/item/19-11-2020-stunting-in-a-nutshell.
12. Yusra A, Febriyani N. Evaluating the Long-term Impact of Health Education Programs on Nutritional Behavior among Adolescents. Journal of Adolescent Health. 2022; 71(4): 417-424. https://doi:10.1016/j.jadohealth.2022.04.018